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How to Clean Up the Oil



By **RP Siegel** | May 14th, 2010 [View Comments](#)



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In 1978, the oil tanker **Amoco-Cadiz** broke up off the coast of France, dumping 220,000 tons of heavy crude oil into the Atlantic. The spill was so large that the entire Brittany coast was impacted. Because of the tremendous costs involved, only selected sections were treated with detergents and dispersants. **Ecological studies** five years later showed that the untreated areas had fully recovered. But, the areas that were treated have still not recovered 32 years later. How could this

be?

Oil is a naturally occurring material. It is not uncommon for oil to seep up from cracks in the ocean floor. According to **Terry Hazen**, a PhD micro-biologist working on bioremediation in the Earth Sciences division of the DOE's Lawrence Berkeley Laboratory, there are thousands of varieties of petroleum-degrading bacteria who are happy to feast on the oil and break it down into simpler and generally safer compounds. Whenever an oil spill occurs, local concentrations of these bacteria are seen to increase up to 100,000 fold.

That means that if the oil is contained and remains at sea, eventually it will be broken down. That's an important point to keep in mind.

Eleven years after the Amoco-Cadiz, there was the **Exxon Valdez** incident which resulted in 11 million gallons of heavy crude entering Prince William Sound and despoiling 1300 miles of pristine coastline. ExxonMobil has spent over \$7 billion to date on the cleanup with relatively little to show for it. Crews attempted **bioremediation** there, providing fertilizer to encourage the bacteria to grow. Some of the oil was broken down that way, though side effects, such as **eutrophication**, where the water becomes oxygen depleted and unable to support life, were significant. This effect is also responsible for numerous **dead zones** already existing in the Gulf of Mexico, the result of fertilizer-laden water coming down the Mississippi River as it passes through the Midwestern farm belt. Hazen is concerned that these dead zones may become significantly larger as the result of the recent spill because of the bacterial growth that will inevitably occur.

This is not to say that nothing that should be done. But the **options are few** and many of them, such as burning or the use of toxic dispersal agents can create as much or more harm than they are trying to prevent. Unfortunately, urgency and prudence don't seem to mix any better than oil and water do.

According to **Riki Ott**, marine toxicologist and author of "Not One Drop: Betrayal and Courage in the the Wake of the Exxon Valdez Oil Spill," spraying **Corexit 9527A** (which contains **2-Butoxyethanol**) in the Gulf, as BP is currently doing, in an attempt to minimize damage to the coast, **will kill the shrimp eggs and larvae and young fish** that are in the water column now. The chemicals in them can linger in the water for decades, especially when used in deep water,

where low temperatures can inhibit bio-degradation. The use of this chemical was responsible for the collapse of the herring fishery in Alaska after the Exxon Valdez. What is so counterproductive about this is the fact that this chemical will also kill the very micro-organisms that would otherwise naturally break down the oil. Ott's biggest concern is the "young of the year," the eggs and embryos and very young fish who are so much more sensitive to these chemicals. "There will be a delayed reaction," she said, "when these fish don't show up as adults when they're supposed to."

Terry Hazen feels that chemical dispersants should only be used, if at all, in a lesser-of-two-evils scenario, where their use might keep the oil from reaching particularly fragile areas or those harboring endangered species. According to Hazen, the most effective and the safest things we can do are to try to prevent the oil from coming ashore and damaging wetlands by erecting barriers and then physically mopping up as much as the oil as we can get our hands on. But where can we possibly find a mop that big?

It turns out that a number of interesting ideas have been proposed, including the use of [human hair](#) and cotton gin waste. But by far the most compelling idea I've heard about comes from a Michigan woman named Adria Brown.

Brown's company, [Recovery 1 Inc.](#), has developed and patented a product called Golden Retriever that is designed to recover oil from water. It is made from corn cobs. Corn cobs turn out to be especially effective in this task, due to the fact that they are buoyant, and the fact that they tend to spin in moving water, which exposes their entire surface to the oil which clings readily to it. The material is simply dumped into the water and then retrieved twenty four hours later using skimmers. As an added benefit, the oil can be completely recovered by centrifuge and the cobs can be reused. Brown has been working with an extensive farm network across the Midwest, led by Feeders Grain and Supply of Corning, Iowa, to acquire the needed materials in quantity. Together, they have amassed a stockpile of close to 34,000 tons of material that is ready to be deployed to the Gulf, where it can be administered using barges, that is, as soon as someone down there asks for it. [Sen. Chuck Grassley](#) has also been involved, helping to move the paperwork in Washington.



Where will the manpower come from? How about the thousands of fishermen who are now out of work and are willing to do anything they can to save their livelihood? How about paying them instead of paying expensive outside consultants with their exotic chemical cocktails? According to Ott, who was on location in Lafayette, LA, when I spoke to her, "the people down here are looking for something that is "bayou-degradable."

We can only hope that the folks in charge of the cleanup will listen to sensible suggestions, rather than continuing to rely on rash measures, in the appearance of "doing something" about the problem.

In the mean time, we will find out in about [75 days](#) if BP's effort, to drill a second well to release the pressure will work. By that time more than twice the oil that came out of the Exxon Valdez will have entered the Gulf waters.

It is very difficult to find any kind of silver lining in this story. All we can hope for is that the damage can be contained to the extent possible and that maybe all Americans will stop and reconsider the impact that our way of life is having on the planet that sustains us. I know, for me personally, every time I get in my car and drive somewhere, I imagine a few drops of oil being added to the Gulf of Mexico in my name.

RP Siegel is the co-author of [Vapor Trails](#), a story about an oil spill and the man responsible for it.

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